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INTRODUCTION

Protein electrophoresis is a technique that allows the separation of different types of plasma proteins (PP), making it possible to determine their relative proportions in a particular sample.

Provides information on:

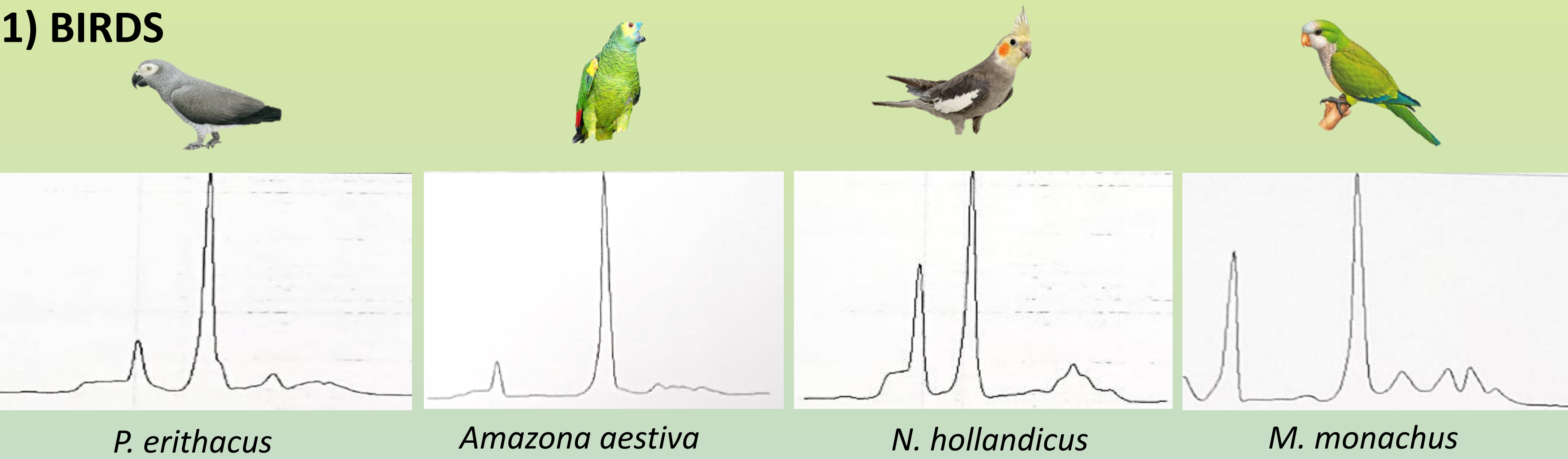
- The physiological and immunological state.
- Acute and chronic inflammatory stages.

Capillary zone electrophoresis (CZE) has been introduced in the last decade in veterinary laboratories, presents greater ease of use and complete automation. It is considered to have higher resolution in detecting and characterizing different protein fractions compared to traditional techniques, resulting in different profiles.

→Their study and validation are necessary to obtain specific reference intervals for an adequate interpretation.

RESULTS

1) BIRDS



2) REPTILES and MAMMALS

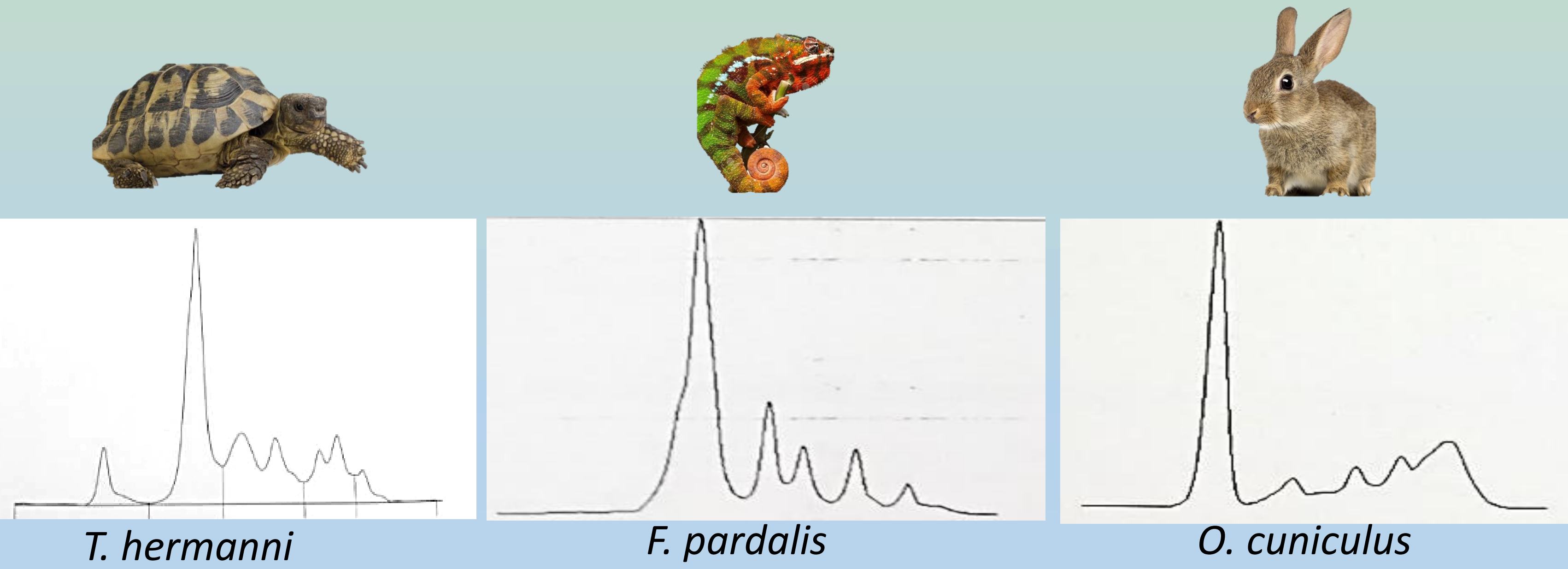


Figure 2. Protein profiles of birds, reptiles and mammals selected as normal patterns., SBCV source. Images from Google.

	Pre		Alb		α		β		γ		P+A/G	PT
	%	g/dl	%	g/dl	%	g/dl	%	g/dl	%	g/dl		
<i>P. erithacus</i>	24,4	0,9	55,5	2,04	8,4	0,31	6,5	0,24	5,2	0,19	3,98	3,67
<i>A. aestiva</i>	16,4	0,62	67,5	2,54	5,5	0,21	6	0,23	4,6	0,14	5,21	3,76
<i>N. hollandicus</i>	34,5	0,81	40,1	0,94	5,9	0,14	16,9	0,4	2,6	0,06	2,94	2,34
<i>M. monachus</i>	25,7	0,72	40,5	1,13	11,6	0,32	18,1	0,51	4,1	0,11	1,96	2,8
<i>T. hermanni</i>	7	0,2	46	1,32	27,6	0,8	16	0,45	3,9	0,1	1,12	2,9
<i>F. pardalis</i>			62,5	3,96	23,5	1,48	9,7	0,78	1,6	0,1	1,67	6,33
<i>O. cuniculus</i>			47,6	3,41	17,9	1,28	14,3	1,03	20,2	1,45	0,91	7,17

Table 2. Values of the PP measured with CZE, SBCV source. Pre= prealbumin, Alb = albumin, PT= Total protein

OBJECTIVES

- 1) Identify electrophoretic patterns of various species of exotic animals.
- 2) Interpret and compare the results of individuals without clinic with individuals with clinic.
- 3) Identify general variations in the use of CZE from Minicap Protein (E) 6 (Sebia, France) with respect to other PP measurement systems in exotic animals.
- 4) Identify the main alterations found in the results of capillary CZE and try to relate to the clinical of the individuals.

MATERIALS AND METHODS

The Minicap Protein(E) 6 system (Figure 1) was used to analyze samples of exotic animals from Hospital Clínic Veterinari (Universitat Autònoma de Barcelona) (Table 1), sampled at the Servei de Bioquímica Clínica Veterinària (SBCV).



Figure 1. Minicap Protein(E) 6. Image from SBCV

Species sampled	N
BIRDS	33
<i>Psittacus erithacus</i>	11
<i>Amazona spp.</i>	7
<i>Nymphicus hollandicus</i>	2
<i>Myopsitta monachus</i>	4
<i>Psittacara erythrogenys</i>	1
<i>Melopsittacus undulatus</i>	6
<i>Agapornis spp.</i>	2
REPTILES	17
<i>Furcifer pardalis</i>	2
<i>Chamaeleo calyptratus</i>	2
<i>Iguana iguana</i>	3
<i>Testudo hermanni</i>	2
<i>Testudo graeca</i>	1
<i>Trachemys scripta</i>	5
<i>Stigmochelys pardalis</i>	1
<i>Testudo horsfieldii</i>	1
MAMMALS	11
<i>Oryctolagus cuniculus</i>	7
<i>Atelerix albiventris</i>	3
<i>Chinchilla spp.</i>	1
TOTAL	61

Table 1. Analyzed samples. Own elaboration. N = number of samples

CONCLUSIONS

- It has been possible to interpret profiles that may be normal and used by the SBCV to compare with other samples.
- The CZE presents greater resolution and usefulness in the diagnosis of exotic species than traditional electrophoretic techniques.
- The concentration of γ-globulins measured by CZE is lower than that described in the literature. Possibly CZE underestimates this fraction.
- Protein separation in psittacids includes the prealbumin fraction, with albumin, α, β and γ. The ratio of Pre/Alb varies markedly according to the species.
- In reptiles, the separation of PP presents individual characteristics. Prealbumin fraction is variable and specific in each individual. It is recommended to make a comparison of the individual patterns.
- In mammals separation of proteins by CZE includes albumin, α1, α2, β, γ γ-globulins.
- It is important to establish a homogeneous criterion for the separation of fractions in each species.